Space Weather Forecast

Issued on Wednesday, 03 August 2022 at 12:20 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: No significant activity.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low over the past 24 hours with three common class flares, although two are from a region no longer on the Earth-facing disc. There are currently two sunspot regions visible, with the main region of interest on the southwest disc with moderate magnetic complexity, although this has shown signs of decay. The other region is a unipolar spot that has rotated onto the southeast disc. No Earth-directed CMEs (coronal mass ejections) were observed.

Solar Wind / Geomagnetic Activity: Earth has likely been grazing the faster solar winds from a coronal hole on the Sun. This has led to elevated solar wind speeds, at around 500-550 km/s. The strength of the magnetic field was generally weak to moderate, with the important north-south component fluctuating weakly between the two directions. Geomagnetic activity was Quiet to Unsettled (Kp 1-3)

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low solar activity is expected to continue, with a slight chance of M-class flares.

Solar Wind / Geomagnetic Activity: No CMEs have been assessed as Earth-directed. Slightly-elevated conditions are expected to persist until day 2 or early day 3 (4th-5th) before easing as Earth exits into the background ambient solar winds. Geomagnetic activity should remain mainly Quiet with a chance of Unsettled or Active intervals through the period, perhaps increasing to mainly Unsettled with a slight chance of G1/Minor geomagnetic storms on day 4 with the next fast wind arrival.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	1	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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